

## The concentration of the creative sector firms as a potential basis for the formation of creative clusters in Poland

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**Abstract.** The study aims to present the structure and analyse the distribution of economic activities comprising the creative sector (covering 10 sections of PKD 2007 – the Polish Classification of Activities based on NACE rev. 2 – the Statistical Classification of Economic Activities in the European Community) of the Polish economy in the context of the potential basis for the formation of creative clusters in Poland. The study concentrates on the numbers of creative firms based in all 3,076 Polish gminas (306 urban gminas, 1,576 rural gminas and 597 urban-rural gminas; in the latter, 597 urban areas and 597 rural areas are considered separately). As found, most of the firms are involved in architectural and engineering activities; technical testing and analysis (M 71) and other professional, scientific and technical activities (M 74). It has also been established that some local incubators of the potential clusters of creative industries form eight distinct centres, the most prominent of which is the Warszawa centre. The identification of areas with higher concentrations of creative firms has demonstrated that in Poland, like in western countries, creative firms tend to locate in large cities (Warszawa, Kraków, Poznań, Wrocław and Tri-City) and in the regions around them.

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### Contents:

|   |    |
|---|----|
| 1. Introduction .....   | 86 |
| 2. The creative sector – different views .....                                      | 86 |
| 3. Materials and methods .....  | 88 |
| 4. Research results: the concentration of the creative sector firms in Poland ..... | 88 |
| 5. Conclusion .....   | 91 |
| Notes .....   | 91 |
| References .....  | 91 |

## 1. Introduction

This study aims to present the structure and analyse the distribution of economic activities comprising the creative sector of the Polish economy in the context of the potential basis for the formation of creative clusters in Poland.

The study concentrates on the numbers of creative firms (1) based in all 3,076 Polish gminas (306 urban gminas, 1,576 rural gminas and 597 urban-rural gminas; in the latter, 597 urban areas and 597 rural areas were considered separately). The concentrations of creative firms were established using the location quotient *LQ*.

Some of the questions that the authors address in the article are the following. Does Poland in the current period of socio-economic development have increased concentrations of creative firms from which creative clusters may develop in the future? If yes, where in the country these increased concentrations and conditions conducive to the „birth” of future creative clusters can be found? Which creative activities will be crucial a potential basis for the formation of creative clusters in Poland? Is the location quotient (*LQ*) an adequate tool for identifying and measuring the level of concentration of firms?

## 2. The creative sector – different views

The creative sector can be viewed from many perspectives. Their range includes social determinants (e.g. *a creative milieu*), economic determinants (e.g. *a creative sector*), legal- administrative and political mechanisms (e.g. policies promoting creativity), or spatial distribution (e.g. clusters of creative industries).

Some of the first studies considering “creativity” with respect to social determinants are studies on regional development published in the early 1980s. Some of them are *Creativity and the renewal of regional life* (Törnqist, 1983), the studies by the GREMI (Groupe de Recherche Européen sur les Milieux Innovateurs established in 1984) and A. Andersson's study *Creativity and regional development* (1985).

G. Törnqist (1983: 103) has pointed to *a creative milieu* as an extremely important factor driving the development of particular regions. The *creative milieu* consists of areas having the three major characteristics: a large resource of information and ease of its distribution across the area; a large amount of knowledge amassed over time; and large resources of competencies in particular activities. These three components together underpin creativity, i.e. skills necessary for new forms and values, both tangible and intangible, to be generated.

According to the GREMI researchers, *a creative milieu* is the main reason why particular regions show different capacity for innovation and development. They perceive *a creative milieu* as a concentration of various relationships, mainly informal social relations, plus the degree to which people feel part of and identify themselves with the region. This understanding of *a creative milieu* stimulates all local innovations (Fromhold-Eisebith, 1999).

Another study from the same period that addresses the issue of creativity is *Creativity and regional development* by A. Andersson, who points to the enormous importance of knowledge and creativity for economic development. According to the author, creativity as a social phenomenon mainly develops in regions with the following features:

1. characterised by high levels of competence,
2. with many fields of academic and cultural activity,
3. with excellent opportunities for internal and external communications,
4. that realise which needs remain to be satisfied,
5. where the general structural instability encourages synergic development (Andersson, 1985).

Another perspective on the creative sector can be found within the economic approach that deals, *inter alia*, with the creative industry concept. One of the first studies in this field was *Creative Nation* of 1994 ordered by the Australian government. The document uses the context of cultural globalisation to set the lines for Australia's cultural policy, emphasises that cultural policy is an element of economic policy, indicates that creative industries are the main factor in economic development and employment growth, etc.

The concept of creative industries has reached European countries too. One of them is the United Kingdom, where the Creative Industries Task Force (CITF) at the Department for Culture, Media

and Sport (DCMS) has been involved since 1997 in the mapping of creative industries' activities. For the purpose of the project, creative industries have been defined as branches that develop from individual creativity, skills and talent, and have sufficient potential to create well-being and new jobs based on intellectual property (Cunningham, 2002). The range of branches recognised as creative includes advertising, architecture, the art and antiques market, television and radio, software and computer services, film and video, publishing, design (graphic, interior, industrial, software, fashion), designer fashion, performing arts, crafts, and interactive leisure software (DCMS, 2009).

Looking at the creative sector from the perspective of legal and administrative and political mechanisms, we need to note that the national, regional and local governments developing their economic growth strategies have recently started to give more and more attention to creating environments promoting the accumulation of creative capital.

A reflection of this approach is Germany's "Initiative Kultur-und Kreativwirtschaft der Bundesregierung" centre (<http://www.kultur-kreativwirtschaft.de>), which was established in 2007 to support and bring together all creative sector initiatives in the country (among its coordinators there are the German Ministry of Economy and Technology and the Minister of State for Culture and Media), or development strategies designed by many cities in the world, e.g. Gdańsk ([www.gdansk.pl](http://www.gdansk.pl)), Hamburg (Behörde für Stadtentwicklung und Umwelt, 2010), Poznań ([www.poznan.pl](http://www.poznan.pl)), and Sydney (City of Sydney, 2008). The importance of the creative sector for Europe's socio-economic development has been appreciated by the European Union too. The documents adopted by the EC highlight the need for European countries to expand their creative and innovative capabilities, e.g. 2009 was announced the European Year of Creativity and Innovation (European Commission, 2008).

In the literature, creative sectors are also considered in terms of their spatial distribution. For instance, countries and regions increasingly use the cluster approach in developing studies and plans on socio-economic development and in performing firm location analysis.

M.E. Porter defines clusters as geographic concentrations of interconnected firms, scientific

institutions, specialised suppliers, providers of services, firms in related industries and associated institutions in particular fields that not only compete but also cooperate with one another (Porter, 2000: 15).

The above approaches to clusters show that the development of a creative cluster is determined by both economic and non-economic factors (social, legal and administrative, political, etc.). Therefore, a cluster as an economic creation is characterised by considerable capacity and flexibility.

Many authors stress the importance of creative industry clusters (e.g. Wrana, 2009), pointing to their effect on the course of cooperation between firms in different economic sectors, as well as on a more efficient exchange of ideas. They also bring up the fact that clusters of creative industries mainly utilise and develop intangible values.

The identification of creative sectors has been attempted by many authors (Fritz, Stützer, 2007; Lazzeretti, Boix, Capone, 2008, 2009; Chapain et al., 2010; Harvey, Hawkins, Thomas, 2012), who either based their research on the size of employment in creative industries (Fritz, Stützer, 2007; Florida, Mellander, 2008; Lazzeretti, Boix, Capone, 2008, 2009; Harvey, Hawkins, Thomas, 2012) or used the numbers of creative firms operating in the analysed area (Chapain et al., 2010).

In Poland, cluster studies are a relatively new line of research. They mainly deal with the formation of industrial clusters (e.g. Dziemianowicz, Olejniczak study of 2002 identifying the Warsaw printing cluster – as quoted in Brodzicki, Szultka, 2002), high-tech clusters (Brodzicki et al., 2002) and building industry clusters (Olesiński, Predygier, 2002).

The above shows that the role of the creative sector as a driver of urban and regional development is increasingly stressed in modern economies (Szymańska, 2009: 56). One of the researchers stressing that creativity underlying the appearance of a new, social class (a *creative class*) whose creativity increases economic value is becoming today one of the key determinants of socio-economic development is R. Florida (2010). His research made him conclude that members of the creative class migrate to places he called activity centres. In his opinion, these centres are the most successful economically today and contribute to their good general indicators of regional development.

### 3. Materials and methods

The general population of economic entities operating in 3,076 Polish gminas that in 2010 were covered by the REGON system was generated from the Local Data Bank of the Polish Central Statistical Office. From that population, almost 305,000 firms (7.8% of 3,909,802 that operated in Poland) representing creative industries (publishing; motion picture, video and television programme production, sound recording and music publishing; programming and broadcasting; computer programming, consultancy and related activities; information services; architecture and engineering; technical testing and analysis; scientific research and development; advertising and market research; other professional, scientific and technical activities; creative, arts and entertainment activities) were selected for further analysis. The data were then processed with standard software (Excel, MapInfo). The resulting database contained over 40,000 records.

The activity of a creative sector may be assessed from the perspective of its employment, gross value added or the number of firms. Micek (2008) argues that a cluster identification procedure using the number of firms rather than the number of employees enables the exclusion of territorial units where employment is high but there is only one firm.

This study used the location quotient  $LQ$  (derived from the numbers of firms) to identify the levels of concentration of firms involved in the creative sector. The quotient is relatively frequently used for the purpose of cluster studies. Although the location quotient ( $LQ$ ) involves some risk of misinterpretation (Bergman, Feser, 1999) and does not provide an insight into cluster structure and mechanisms (Micek, 2008), it nevertheless allows identifying increased spatial concentrations of firms that may lead to the “birth” of potential creative clusters.

Generally, a location quotient ( $LQ$ ) is a ratio between a sector's share in the regional economy (a creative sector in this case) and its share in the national economy. The  $LQ$  for the creative sector was obtained from the following formula:

$$LQ = (X_k/X)/(Y_k/Y),$$

where

$X_k$  – the number of economic entities in the creative sector ( $k$ ) in the gmina,

$X$  – the number of economic entities in all sectors in the gmina,

$Y_k$  – the number of economic entities in the creative sector ( $k$ ) in Poland,

$Y$  – the number of economic entities in all sectors in Poland.

The location quotient ( $LQ$ ) may take the following values:  $>1$ ,  $1$ ,  $<1$ . Its value in excess of 1.25 is assumed to show regional specialisation in the given sector of economy (Brodzicki, Szultka, 2002).

### 4. Research results: the concentration of the creative sector firms in Poland

The research showed that the 2010 REGON database contained over 3,909,000 economic entities, of which 7.8% (304,900) carried on their activities in the creative sector.

Most creative firms represented activities such as architecture and engineering, technical testing and analysis (M 71; almost 27 % of their total number), as well as other professional, scientific and technical activities (M 74; 23.9%). Firms involved in computer programming, consultancy and related activities (J 62) accounted for 15% of all creative firms; the share of those providing advertising and market research services (M 73) was somewhat smaller – 13.9%. The shares of firms representing the remaining six creative sections (J 58, J 59, J 60, J 63, M 72, R 90) ranged from 0.3 % to 5.9% – see Table. 1.

It is worth noting that the definite majority of the analysed firms, 85.7%, were based in urban areas; only 14.3% chose rural areas for their location. Among the 3,076 gminas covered by this study only 15 (0.5%; 9 rural areas in the urban–rural gminas and 6 rural gminas) did not have any economic entity representing the creative sector.

In order to establish the level of concentrations of firms comprising the creative sector in Poland, the location quotient  $LQ$  was computed for 3,076 territorial units of administration (i.e. all Polish gminas), (Fig. 1). Its values ranged between 0.0 and 1.85.

**Table 1.** The numbers of economic entities classified as creative organisations in PKD 2007

|         | M       |       | W       |       | Σ       |       |
|---------|---------|-------|---------|-------|---------|-------|
|         | a       | b     | a       | b     | a       | b     |
| J 58    | 13,796  | 5.3   | 1,441   | 3.3   | 15,237  | 5.0   |
| J 59    | 9,525   | 3.6   | 1,544   | 3.6   | 11,069  | 3.6   |
| J 60    | 913,000 | 0.4   | 53,000  | 0.1   | 966,000 | 0.3   |
| J 62    | 39,865  | 15.2  | 5,869   | 13.5  | 45,734  | 15.0  |
| J 63    | 12,191  | 4.7   | 1,759   | 4.0   | 13,950  | 4.6   |
| M 71    | 70,401  | 26.9  | 11,659  | 26.9  | 82,060  | 26.9  |
| M 72    | 2,395   | 0.9   | 298,000 | 0.7   | 2,693   | 0.9   |
| M 73    | 37,343  | 14.3  | 5,153   | 11.9  | 42,496  | 13.9  |
| M 74    | 61,377  | 23.5  | 11,500  | 26.5  | 72,877  | 23.9  |
| R 90    | 13,685  | 5.2   | 4,146   | 9.5   | 17,831  | 5.9   |
| K total | 261,491 | 100.0 | 43,422  | 100.0 | 304,913 | 100.0 |

Explanation: M – urban gminas and towns in urban–rural gminas; W – rural gminas and rural areas in urban–rural gminas; a – the number of economic entities; b – as a percentage of all economic entities in the creative sector; J 58 – publishing; J 59 – motion picture, video and television programme production, sound recording and music publishing; J 60 – programming and broadcasting; J 62 – computer programming, consultancy and related activities; J 63 – information services; M 71 – architecture and engineering; technical testing and analysis; M 72 – scientific research and development; M 73 – advertising and market research; M 74 – other professional, scientific and technical activities; R 90 – creative, arts and entertainment activities; K – creative sector

Source: Developed by the authors based on the Local Data Bank of the Central Statistical Office

The research found 2,889 gminas (93.9% of their total number) with *LQ* below 1.0 and 143 gminas (4.7% of the total number; 2.8% of the country's area) where *LQ* values ranged from 1.00 to 1.25; in the remaining 44 gminas the *LQ* varied between 1.25

and 1.85 (Warszawa). This last range of *LQ* values (>1.25) reveals regional specialisation in the creative sector (61.4% of the gminas are towns; 15 cities of them have populations in excess of 100,000) – see Fig. 1 and Table. 2.

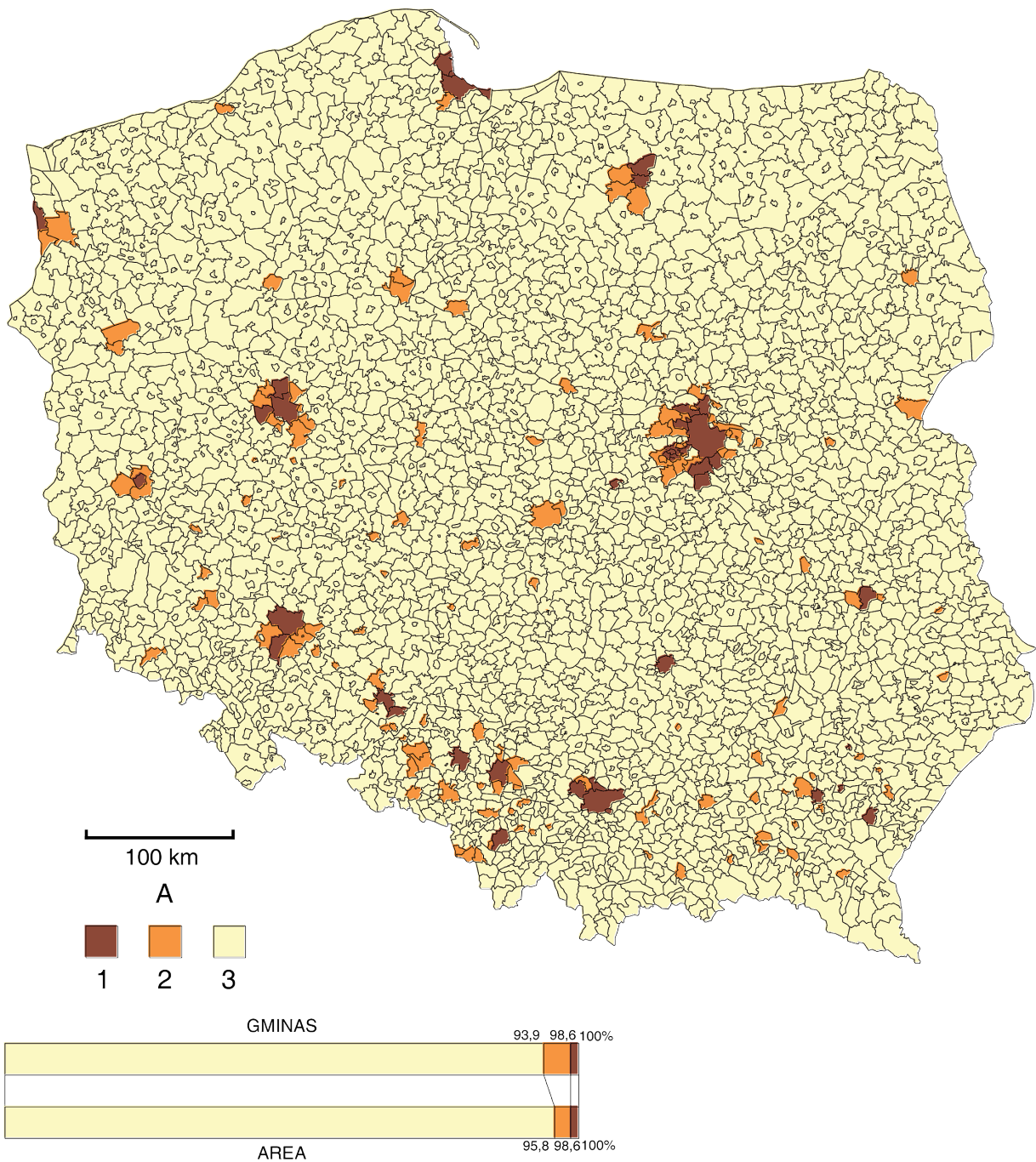
**Table 2.** *LQ* values calculated for 44 territorial units – a potential basis for the formation of creative clusters in Poland

| <i>LQ</i> | 1.85     | 1.71–1.80     | 1.61–1.70                        | 1.51–1.60               | 1.41–1.50   | 1.26–1.40   |
|-----------|----------|---------------|----------------------------------|-------------------------|---|---|
| A         | Warszawa | Podkowa Leśna | Kraków, Poznań, Rzeszów, Wrocław | Opole, Sopot            | Boguchwała, Gdańsk, Gliwice, Katowice, Zielona Góra                                     | Bielsko-Biała, Gdynia, Kielce, Lublin, Łańcut, Milanówek, Olsztyn, Skierniewice |
| B         |          |               | Łomianki                         | Nowa Sarzyna, Piaseczno | Brwinów, Halinów  | Wieliczka   |
| C         |          | Piaseczno     |                                  |                         | Konstancin-Jeziorna, Pruchnik, Zabierzów  | Dobra   |
| D         |          |               |                                  |                         | Brwinów, Dopiewo, Izabelin, Kobierzyce, Michałowice, Nieporęt, Tarnów Opolski, Zielonki | Dywity, Jabłonna, Prażmów, Suchy Las  |

Explanation: A – urban gminas, B – towns in urban–rural gminas, C – rural areas in urban–rural gminas, D – rural gminas

Source: Developed by the authors with data from the Local Data Bank of the Central Statistical Office





**Fig. 1.** LQ values calculated for the creative sector in Poland by gminas in 2010

Explanation: A – the location quotient: 1–  $LQ X < 0.00-1.00>$ , 2–  $LQ X (1,00-1.25>$ , 3–  $LQ X (1.25 - 1.85>$

Source: Developed by the authors based on the Local Data Bank of the Central Statistical Office

Gminas where LQ values range from 1.25 to 1.85 account for 1.4% of all Polish gminas and occupy 1.4 % of the country’s territory. It is worth noting at this point that over one-third of the aforementioned 143 gminas (54 gminas – 38%) border directly or

indirectly on areas with increased concentrations of creative firms. Therefore, there are 44 gminas with LQ values in the 1.25–1.85 range that are adjacent to 54 gminas with LQ values between 1.00 and 1.25 where clusters of creative activities may devel-

op in Poland in the future. These areas have higher concentrations of creative firms, so there are more opportunities for similar firms to enter into cooperation and for creative clusters to grow

Only 44 of the investigated Polish gminas can be said to have higher concentrations of creative firms. Most of these gminas have common borders and form 8 distinct areas of Warszawa (Brwinów, Halinów, Izabelin, Jabłonna, Konstancin–Jeziorna, Łomianki, Michałowice, Milanówek, Nieporęt, Piaseczno, Podkowa Leśna, Prażmów, Warszawa), Kraków (Kraków, Wieliczka, Zabierzów, Zielonki), Poznań (Dopiewo, Poznań, Suchy Las), Tri–City (Gdańsk, Gdynia, Sopot), Olsztyn (Dywity, Olsztyn), Opole (Opole, Tarnów Opolski), Rzeszów (Boguchwała, Rzeszów), and Wrocław (Kobierzyce, Wrocław), but there are also 11 single gminas of Bielsko–Biała, Dobra, Gliwice, Katowice, Kielce, Lublin, Łańcut, Nowa Sarzyna, Pruchnik, Skierniewice, and Zielona Góra. Indeed, there are already *Synerg IT* Klaster Informatyczny (the *Synerg* IT cluster) and Wielkopolski Klaster Firm Projektowo–Wykonawczych *ARCHI–PROJEKT* (the Wielkopolska Cluster of Design and Building Firms *ARCHI–PROJEKT*), which were established in the Poznań area in, respectively, 2010 and 2011; Klaster *Europejskie Centrum Gier* and Klaster Informatyczny *Trident Sp. z o.o.* (the *European Game Centre* and the *Trident Sp. z o.o.* IT cluster), which appeared in the Kraków area in 2011; and Klaster Firm Informatycznych Polski Wschodniej (the Cluster of Eastern Poland's IT firms) formed in the Rzeszów area in 2012.

## 5. Conclusion

Most creative firms in Poland are involved in architectural and engineering activities, technical testing and analysis, and other professional, scientific and technical activities. They represent in total as much as 50.9 % of all creative firms.

The location quotient (*LQ*) used in the research has proved an adequate tool for identifying and measuring increased concentrations of creative firms. The research results have showed that cluster initiatives undertaken within creative industries covered by the PAED database (the Polish Agency for Enterprise Development) are rational.

The identification of areas characterised by higher concentrations of creative firms has demonstrated that in Poland, like in western countries, this type of firms tends to locate in large cities (Warszawa, Kraków, Poznań, Wrocław and Tri–City) and in the regions around them.

The purpose of the study was to identify which Polish gminas may be the sites of creative industry clusters in the future. It is one of the first studies investigating the locations of all creative firms in all Polish gminas. The future research setting out to identify creative clusters in the country should consider additional criteria of economic nature, for instance the number of employees and gross value added generated by creative firms, and investigate the relationships between particular firms. Considering the limited availability of reliable and quantifiable data, the task seems quite complicated.

## Notes

- (1) publishing; motion picture, video and television programme production, sound recording and music publishing; programming and broadcasting; computer programming, consultancy and related activities; information services; architecture and engineering; technical testing and analysis; scientific research and development; advertising and market research; other professional, scientific and technical activities; creative, arts and entertainment activities (determined from PKD 2007, i.e. the Polish Classification of Activities which is based on NACE rev. 2, the Statistical Classification of Economic Activities in the European Community; see Eurostat, 2008: 80–89).

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